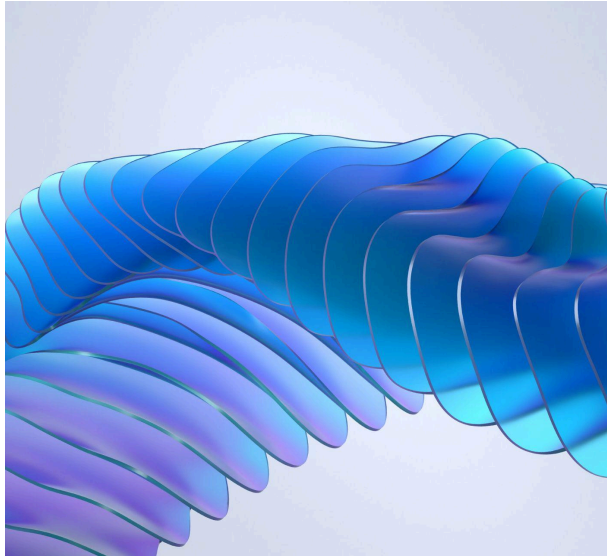# ReplicTest

IBM i Automated
End to End
Testing tool

Simplicity and efficiency are the predominant factors of this "engine" Testing tool for your IBM i applications

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Native green screen 5250

IO + Navigation Encapsulation
Plug-in for IBM i Access Client Solutions (ACS)
Test speeded up to 200 x faster vs manually

Web Services

IO Encapsulation with initialisation and comparison
(GET, POST)
REST API, microservices

Application's DB tables

Automated DB Tables Encapsulation with reset & comparison data for all test environments (5250, web, batch)
Integrates RLA, SQL, ODBC, JDBC

Code Coverage

Details lines and % of code covered by single test case or merged lines and % by multiple tests
(Merging code coverage and having information dynamically is essential to validate quality ranks and govern flow processes)

Call pgm IO parm

IO parm Encapsulation with parameters initialisation and comparison

Shrink Data

Creation of data subset with only the records effectively used by the test case.
(Enable & Increase tests replay frequency with a considerable reduction in turnaround times)

Enable & Automate your testing
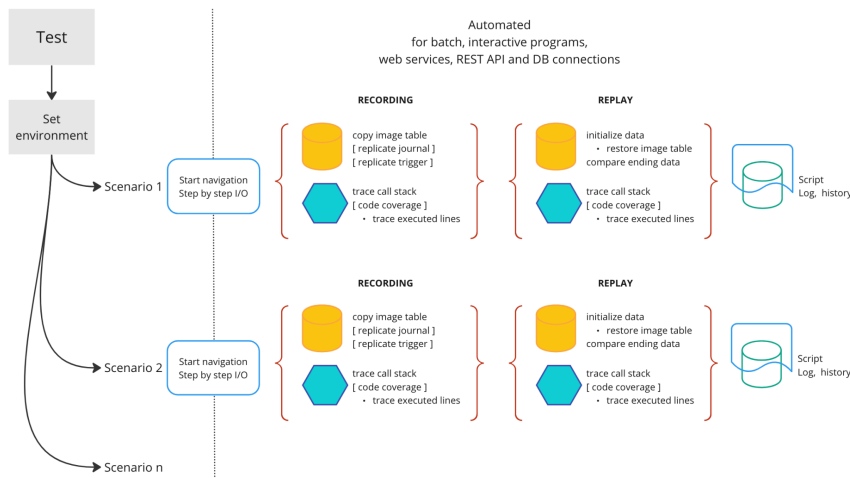## Institutionalize quality and Save more than 88% of your time

ACCELERATE TIME TO MARKET

Full DataBase integration

DB tables and files identification for images, restore and comparison are automatically handled.

Tests need to be replicable, which means that the data must be reset each time a test is replayed and many test tools, like ours, include this functionality. But the prerequisite is that all data files or tables are identified first. This prerequisite is often left to the end user or some tools just copy entire libraries with all files and tables.

ReplicTest does this automatically on the fly and only for the files and tables actually used by the specific test case. This is optimizing all processes in your IBM i (aka AS400), from prerequisite recognition to execution, doing and automating all the hard tasks for you.

Test

Set environment

Scenario 1

Scenario 2

Scenario n

Start navigation
Step by step I/O

Automated
for batch, interactive programs,
web services, REST API and DB connections

RECORDING

copy image table
[replicate journal]
[replicate trigger]

trace call stack
[code coverage]
• trace executed lines

REPLAY

initialize data
• restore image table
compare ending data

trace call stack
[code coverage]
• trace executed lines

Script
Log, history
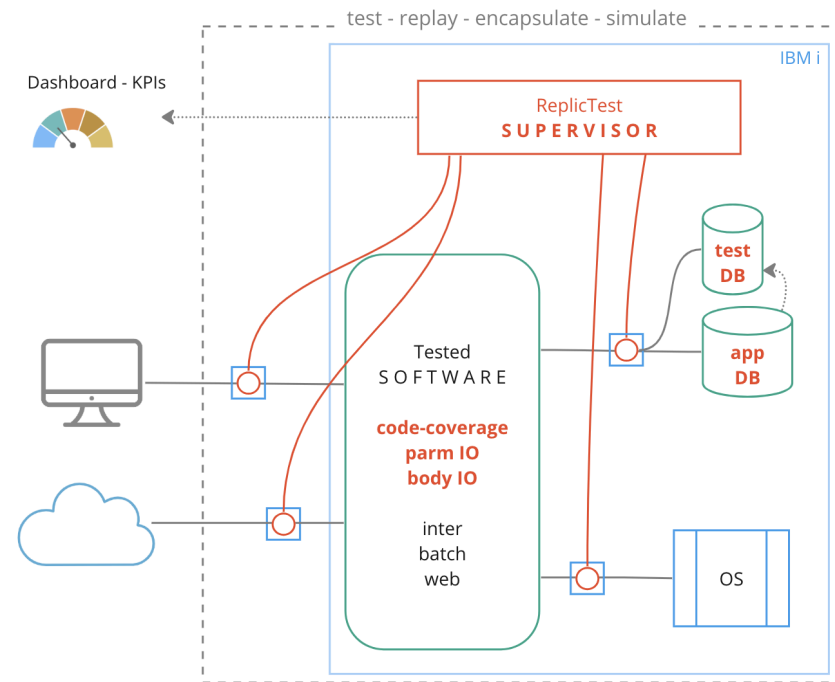
Automated for batch, web or interactive programs

The same command is used to process recording or replay of the test case. By default, the command automatically detects in which modality it should run; recording or playback and depending on the modality, different behaviors are processed to copy, restore or compare the image data.

Holistic

Comprehensive testing in a holistic manner with our Test Encapsulation Engine, inter/batch/web (encapsulating DB, UI, IO parm, body parm and code coverage – with restorations and comparisons)

Our "Encapsulation Engine" is "omnivorous": It can also integrate any objects like spoolfiles dtaara, dtaq, IFS objects, the joblog, etc… and more, when you change an object in your system, you will know which tests involved it and relaunch all of them.

Invokable as a wrapper to single or series of Calls, REST APIs, SQL Requests.
Plugable to Cypress or Selenium.

test - replay - encapsulate - simulate

IBM i

Dashboard - KPIs

ReplicTest
SUPERVISOR

test DB

app DB

Tested SOFTWARE

code-coverage
parm IO
body IO

inter
batch
web

OS

Regression testing, deployment and monitoring

Tests can be scheduled automatically, in sequence or in parallel, with same or different login

Command driven, tests can be launched automatically via different options, through other commands or via scripts in modular ways.
Tests status are logged including call stacks. In case of failure, monitoring configuration can leave the job open, or end it (and go/no go to a next test), logging all relevant messages and contextual metadata. Switch login to test different user authority access can be truly undertaken. (ReplicTest integrates all objects ownership and authority in replay mode as well).

User experience, KPIs and improvement

Reporting, KPIs

The user experience has been valued, for instance with the flexibility of correcting Recordings already done. Imagine you recorded a test case involving 30 screens and you realize you've entered the wrong data on screen 25, the tool enables the flexibility to correct it without having to redo the entire recording.

Correcting script
Correcting recording
Correcting recording with data initialization
Spliting recording/replay script
Merging recording/replay script

The same goes for web services and the integration of body messages. Another example is with timestamps that can automatically be bypassed for test replay comparisons or as in the case of code coverage that can be retrieved dynamically through an SQL UDF and also in an automated test driven workflow.

Merging code coverage
- Lines of code executed

Tasks can be divided between End-User and Programmer.
A non-programmeur end user can easily record a test case then a programmer can integrate it and deploy it.

"Often, people ask what a realistic metric to measure design impact could be, and I'm convinced that metric is "time to value." If your design influence isn't decreasing overall time to value, you're doing something wrong."

Juan J. Ramirez
Product Design Lead @Netflix

Reporting can integrate a lot of information, from test status trends to message log with line statements, from code coverage percentage to time gained. All item information is available in a comprehensive database from which you can customize test reporting.
At last, we can also obfuscate datasets and present results in a dashboard.

Integrate KPIs, Metrics and Trends into Your Software Development Lifecycle

Case Study

The tool enables a testing governance of high accuracy in correlation with impact analysis of lines of code to be changed for specific projects like, for example Field Resize.

It is also totally integrable with our DevOps solution.

Go to market with confidence
Test is covered

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"The innovation of ReplicTest is remarkable because it is removing what represented a roadblock for many IBMi shops to achieve testing. For the quality of the code, the consistency of the data and significant time savings."
Birgitta Hauser - IBM i Champion

"Besides the traditional automated regression testing using ReplicTest sql-scripting feature to invoke app processes, we also use ReplicTest in our refactoring project. Refactoring is all about testing; making small changes, testing, additional changes, again testing etc... Using the metadata ReplicTest makes available developers can compare the before and after situation easily. All database access is recorded including the call stack at that event. By analyzing the data provided we are able to trace any overhead in the process. "Why are we querying this table?". Together with the Code-Coverage feature we were able to remove obsolete code and make our application much faster.
About our product: ECI's EasyOrder is an IBM i web based e-commerce and order management solution and is used in a variety of industries. It covers the entire supply chain and the solution involves a variety of electronic procurement systems to purchasing systems with many customizations."
Rick Bovet - Development manager at ECI Software Solutions

Empowered code coverage

Full code coverage metadata and code coverage merging (generated directly in IFS and DB, no RDi dependency)

Create test variations with the same initial data

To get strong coverage you will often need to run the same test with different inputs. The tool integrates a feature to start a test with the same initial data and gives you back the control to continue with different inputs and create variations.

User friendly and efficient

End users (even non-programmers) can use ReplicTest to record test scenarios and a programmer can integrate them. One unique command to record and replay your test scenarios.

IDE or DevOps integration

The tool can be integrated with any IDE or DevOps structure. Command's driven and DB queryable. ReplicTest scripts can also be integrated with VS Code or SQL scripts.

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